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L2: Entry 17 of 46

File: USPT

Mar 16, 1999

DOCUMENT-IDENTIFIER: US 5884138 A

TITLE: Method for improving the stiffness of extrudates

Detailed Description Text (20):

The extruder must be one in which the mixture components can be uniformly blended with the carbon dioxide. Thus two stage de-airing single auger extruder, or a twin screw mixer with a die assembly attached to the discharge end are suitable. In the latter, the proper screw elements are chosen according to material and other process conditions in order to build up sufficient pressure to force the batch material through the die. Extrusion temperatures typically range from room temperature to no higher than about 60.degree. C.

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File: PGPB

Dec 19, 2002

DOCUMENT-IDENTIFIER: US 20020193459 A1

TITLE: Foam of thermoplastic urethane elastomer composition and process for producing the foam

Detail Description Paragraph:

[0358] In the method for producing the laminate of the urethane-based thermoplastic elastomer composition foam by extrusion molding of the invention, the urethane-based thermoplastic elastomer is molten under heating, incorporated and uniformly mixed with carbon dioxide in the first extruder (21) serving as the inlet-side for the continuous plasticator, at the dissolving step which forms the compatible state of the urethane-based thermoplastic elastomer and carbon dioxide. In the cooling step, the molten urethane-based thermoplastic elastomer composition is cooled to have a viscosity suitable for foaming at the outlet side of the continuous plasticator.

Detail Description Paragraph:

[0451] One part by weight of the supercritical carbon dioxide was added in the first extruder (21), while metering by the flow meter (9), per 100 parts by weight of the molten urethane-based thermoplastic elastomer, where they were uniformly mixed with each other by the screw (27). The resultant molten urethane-based thermoplastic elastomer was sent to the second extruder (22), where the resin temperature was adjusted at 200.degree. C., and extruded from the circular die (29) at an extruding amount of 10 kg/hour. The die inside was kept at 8 MPa. The urethane-based thermoplastic elastomer extruded was foamed at the same time after extruding from the circular die (29), and then was put over the water-cooled mandrel (31) provided in front of the circular die (29). The urethane-based thermoplastic elastomer foam formed into a cylindrical shape was run while cooling over the mandrel (31), and developed by a cutter blade into the urethane-based thermoplastic elastomer foamed sheet(30). Obtained the urethane-based thermoplastic elastomer foamed sheet was 63 mm wide and 1.5 mm thick, and had elegant appearances.

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L2: Entry 2 of 46

File: PGPB

Mar 27, 2003

DOCUMENT-IDENTIFIER: US 20030060524 A1

TITLE: Process for production of modified thermoplastic resin and modified thermoplastic resins

Detail Description Paragraph:

[0071] The supercritical carbon dioxide was supplied to the first extruder 2 at a rate of 20 parts by weight per 100 parts by weight of the molten thermoplastic resin mixture and was here subjected to the action of the screw so as to dissolve and disperse uniformly in the molten resin mixture. The resulting uniform molten mixture was guided to the second extruder 3, where the mixture was adjusted at a temperature of 190.degree. C. under a pressure of 20 MPa to cause the modifying reaction of the thermoplastic resin 11. The molten resin mixture subjected to the modifying reaction in the second extruder 3 was then transferred to the third extruder 4, where the mixture was adjusted at a temperature of 170.degree. C. under a pressure of 0.3 MPa. Carbon dioxide and the concomitant impurities, such as unreacted reaction components etc., were removed from the molten resin mixture by extraction and degasification under a reduced pressure through the two degasification ports 36 and 37.

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